

IF WHEEL SLIPS

$$\Rightarrow F_A = \mu_k N_A \quad \text{use with 3 Eqs of Motion}$$

we still have  $N_A = 250 \text{ N}$

also  $F_A = \mu_k N_A = (0.25)(250) = 62.5 \text{ N}$

then  $a_{Gx} = \frac{F_A}{m} = \frac{62.5}{\left(\frac{250}{g}\right)} = 2.45 \text{ m s}^{-2}$

$$\sum M_G = I_G \alpha$$

$$\alpha = \frac{50 - (0.4)(F_A)}{I_G} = \frac{50 - (0.4)(62.5)}{1.019}$$

$$\Rightarrow \alpha = 24.5 \text{ rad s}^{-2}$$



$$F_{A_{\max}} = \mu_s N_A \quad (\text{no slip condition})$$